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Typification of names allied to *Centaurea ambigua* (Asteraceae) from the Apennine Peninsula (Italy)

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Abstract

A contribution to the nomenclature of the Italian endemic *Centaurea ambigua* is presented. A survey of original material for the names applied to the three currently accepted subspecies (*C. ambigua* subsp. *ambigua*, *C. ambigua* subsp. *laciniata*, *C. ambigua* subsp. *nigra*) was performed. Lectotypes for five names based on specimens preserved at FI, G and NAP are designated: *C. ambigua*, *C. dissecta* var. *macrocephala*, *C. dissecta* var. *melanocephala*, *C. dissecta* var. *nigra*, and *C. laciniata*. Finally, *C. ambigua* subsp. *laciniata*, actually considered a subspecies narrowly endemic to Abruzzo (central Italy), is proposed here as a heterotypic synonym of *C. ambigua* subsp. *ambigua*.

Keywords

Endemism, Lectotype, Nomenclature, Taxonomy

Introduction

The genus *Centaurea* L. with more than 700 currently accepted species (POWO 2024+) and with 1342 accepted names in the world (WFO 2024+) is one of the largest genera of the Asteraceae Berchtold & J.Presl. It is traditionally cosidered as taxonomically critical genus, due to hybridization and polyploidy, and has been widely investigated from a systematic and taxonomic point of view in the last two decades (e.g., Conti et al. 2011; Pisanu et al. 2011; Hilpold et al. 2014a, 2014b; López-Alvarado et al. 2014;

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Domina et al. 2017; Garcia-Jacas et al. 2019; Stinca et al. 2019; Del Guacchio et al. 2020; Novaković et al. 2022; De Luca et al. 2023; Giacò and Peruzzi 2024).

Centaurea ambigua Guss. is a polymorphic species endemic to the Apennine Peninsula distributed from Emilia-Romagna to Campania (Peruzzi et al. 2014; Pignatti et al. 2018; Bartolucci et al. 2024), in which three subspecies are currently recognized (Bartolucci et al. 2024): *C. ambigua* subsp. *ambigua* endemic to the Apennines, *C. ambigua* subsp. *laciniata* (Guss. ex DC.) Arcang. endemic to Abruzzo, and *C. ambigua* Guss. subsp. *nigra* (Fiori) Pignatti endemic to central Italy. This latter taxon was regarded by Guarino and Rampone (2006) as a separate species named *C. delucae* C.Guarino & Rampone. Furthermore, within the distribution range of the three cited subspecies several distinct morphological varieties or forms have been described, usually linked to single localities. To date, the names of the three accepted taxa mentioned above are not yet typified (Peruzzi et al. 2015).

Here we present a first nomenclatural contribution that is part of an ongoing study of the systematics and taxonomy of *C. ambigua*, and we designate the nomenclatural types for five names.

Material and methods

This study is based on an extensive literature analysis and detailed examination of herbarium specimens (including the original material) kept in APP, FI, G, and NAP (codes according to Thiers 2024+) and primarily available through online resources (i.e. FI: http://parlatore.msn.unifi.it/types/search.php; G: https://www.ville-ge.ch/musinfo/bd/cjb/chg/index.php?lang=en). Type designations follow the Shenzhen Code (hereafter "ICN"; Turland et al. 2018).

For each name, we list the type specimen citation and relevant data indicated in the protologue ("protologue citation"). Further nomenclatural and/or taxonomical notes are provided. Names (accepted names are given in bold italics) are listed in alphabetical order of their basionyms. The images of the designated type specimens are provided in Suppl. material 1.

Typification of the names

Centaurea ambigua* Guss., Pl. Rar.: 360(–362, pl. 61). 1826. [after 4 June 1826] subsp. *ambigua

≡ *Centaurea dissecta* var. *ambigua* (Guss.) Fiori in Fiori & Bég., Fl. Italia 3(2): 336. 1904. [April 1904]

Protologue citation. "In collibus aridis, et in cultis Aprutii; Caramanico, Roccamorice".

Lectotype (designated here). [Italy, Abruzzo] tra Roccamorice e S. Spirito alla Majella nei siti calcarei, 20 August 1824, *Gussone s.n.* (NAP barcode NAP0005395 [digital photo!], Suppl. material 1: fig. S1).

Nomenclatural note. Gussone (1826) described *C. ambigua* providing an extended diagnosis and a detailed description, both in Latin, and a precise locality. Furthermore, the author cited in the protologue the illustration "Ic. nostra t. 61". We performed a survey of the original material at NAP, where Gussone's main collection is housed (Stafleu and Cowan 1976) and maintained as two separate collections, named "Gussone Generale" and "Gussone Sicilia" (La Valva 1993; Santangelo and Strumia 2014). We traced three specimens collected by Gussone before the description of the species in the collection "Gussone Generale": 1) the herbarium specimen NAP0005395 bears a label added by L. Grande "*Centaurea ambigua* Guss! | tra Roccamorice e Santo Spirito | 20 agosto 1824 legit Gussone!"; 2) the herbarium specimen NAP0005395 bears two original labels *manu* Gussone not linked with the two individuals on the sheet (a whole individual on the left and a rosette of basal leaves on the right) "*Centaurea ambigua* [Guss.! added by L. Grande]| 20 Agosto 1824 | tra Roccamorice e S. Spirito | alla Majella nei siti calcarei" and "(a) 20 Ago 1824 | tra Roccamorice e S. | Spirito nei luoghi | collinari"; 3) the herbarium specimen NAP0005396 bears a label *manu* Gussone "(b) *Centaurea* | *ambigua* [Guss.! added by L. Grande] | 1824 Roccamorice | [...]". The morphology of the three herbarium specimens is congruent with the protologue and with the current application of the name (Pignatti et al 2018; Bartolucci et al. 2024). Along with the illustration cited in the protologue, they can be safely considered as original material (Art. 9.4 of the ICN). We select here the herbarium specimen NAP0005395 as the lectotype for the name *C. ambigua*.

Taxonomic note. Based on a preliminary analysis of several herbarium specimens in APP collected within the putative native range (Apennines, from Emilia-Romagna to Campania), the typical *C. ambigua* (small capitula and pale involucral bracts), seems restricted to the low mountainous, calcareous sectors of the northern Maiella (Abruzzo, central Italy). Records from other areas in Abruzzo or other Italian administrative regions should be verified, and a more in-depth study is be needed to delineate the exact distribution range of *C. ambigua* subsp. *ambigua*.

***Centaurea dissecta* var. *macrocephala* Groves ex Fiori in Fiori & Bég., Fl. Italia 3(2): 335. 1904. [April 1904]**

Protologue citation. "Abr. a Macchia Lunga (Groves!)".

Lectotype (designated here). [Italy, Abruzzo] Macchia lunga, Abruzzi, 1888, *Profeta s.n. ex Herb. Groves* (FI barcode FI058574 [digital photo!], Suppl. material 1: fig. S2).

Nomenclatural note. The name *Centaurea dissecta* var. *macrocephala* is legitimate even though it was published under the illegitimate *C. dissecta* Ten. (1812: LI), a later homonym of *C. dissecta* Hill (1762) (Art. 55.2 of the ICN). Fiori (1904) published this name providing a short description and quoting only a single locality. We traced in FI the specimen barcoded FI058574 bearing the label "*Centaurea dissecta* Ten. forma *macrocephala*, Macchia lunga, Abruzzi, 1888, *Profeta ex Herb. Groves*". This specimen is complete, well preserved and agree with the protologue and can be safely considered as

original material (Art. 9.4 of the ICN). The herbarium specimen FI058574 is selected here as lectotype for the name *C. dissecta* var. *macrocephala*.

The type locality "Macchia lunga" is probably a toponym close to Roccapia (L'Aquila), where other botanists at that time have made some gatherings (e.g., E. Levier). Furthermore, there are other samples collected by Profeta (see nomenclatural notes of *C. dissecta* var. *melanocephala*) around that area (i.e. Mt. Genzana, L'Aquila). In addition, the morphological features of the type specimen of *C. dissecta* var. *macrocephala* clearly correspond with those observed by us in the specimens collected in the area of Mt. Genzana.

Taxonomic note. This variety, based on the studied type specimen and on field observations, is morphologically different from the subspecies currently recognized under *C. ambigua*. Pending further in-depth systematic and taxonomic studies, we provisionally include this variety in the variability of *C. ambigua* subsp. *nigra*, primarily for the black involucral bracts.

***Centaurea dissecta* var. *melanocephala* Fiori in Fiori & Bég., Fl. Italia 3(2): 335. 1904. [April 1904]**

Protologue citation. "Abr. al Sirente e M. Lengiana"—*Centaurea dissecta* var. *humilis* Groves, in schedis.

Lectotype (designated here). [Italy, Abruzzo] in glareosis Montis Sirente in Aprutio (sub Canale), July 1877, *Profeta s.n. ex Herb. Groves* (FI barcode FI058575 [digital photo!], Suppl. material 1: fig. S3).

Nomenclatural note. The name *Centaurea dissecta* var. *melanocephala* is legitimate even though it was published under the illegitimate *C. dissecta* Ten. (1812: LI), a later homonym of *C. dissecta* Hill (1762) (Art. 55.2 of the ICN). Fiori (1904) described *C. dissecta* var. *melanocephala* providing a short description and quoting two localities. We traced in FI several relevant specimens labeled by Fiori as *C. dissecta* var. *melanocephala*. The specimen FI058575 is labeled "*Centaurea dissecta* var. D *humilis* Ten. (fide Levieri), in glareosis Montis Sirente in Aprutio (sub Canale), 7/77, *Profeta ex Herb. Groves*"; the specimen FI058576 is labeled "*Centaurea dissecta* var. D *humilis* Ten. (Ten. errore sub *C. cinerea*), ad rupes Montis Sirente versus Canale, 5300, 7/75, *Groves*"; the specimen FI058577 is labeled "*Centaurea dissecta* var. D *humilis* Ten. (fide Levieri), ad rupes Montis Sirente in Aprutio, 5000, 7/77, *Profeta ex Herb. Groves*"; the specimen FI058578 is labeled "*Centaurea dissecta* var. D *humilis* Ten. (Ten. errore sub *Cent. cinerea*) [...] ad Rupes montis Canale, Sirente, 5300, 7/76, *Profeta ex Herb. Groves*"; the specimen FI058579 is labeled "*Centaurea dissecta* Ten., Monte Genziana [Genzana], Abruzzi, 1889, *Profeta ex Herb. Groves*". For the latter specimen, Fiori reports the locality "M. Lengiana", but certainly due to an incorrect interpretation of the spelling, which clearly shows "M. Genziana", now Mt. Genzana. These specimens can be safely considered as original material, and their morphology is congruent with the

protologue (Art. 9.4 of the ICN). We select here the herbarium specimen FI058575 as the lectotype for the name *C. dissecta* var. *melanocephala*.

Taxonomic note. Pending further in-depth systematic and taxonomic studies, we provisionally include this variety in the variability of *C. ambigua* subsp. *nigra*.

***Centaurea dissecta* var. *nigra* Fiori in Fiori & Bég., Fl. Italia 3(2): 335. 1904. [April 1904]**

≡ *Centaurea parlatoris* subsp. *nigra* (Fiori) Dostál, Bot. J. Linn. Soc. 71: 197. 1976.
≡ *Centaurea ambigua* subsp. *nigra* (Fiori) Pignatti, Giorn. Bot. Ital. 113(5–6): 367. 1980.
≡ *Centaurea delucae* C.Guarino & Rampone, Bocconea 19: 85. 2006.

Protologue citation."Abr. al M. Velino (Levier!), Gr. Sasso al Corno Grande (Levier!) ed a Pizzo Cefalone (Martelli!) e Camp. al M. Meta (Levier hb.!); reg. alp.".

Lectotype (designated here).—[Italy, Abruzzo] Gran Sasso d'Italia. Rupi della Traversa di Pizzo Cefalone, 16 August 1893, *U. Martelli s.n.* (FI barcode FI058572 [digital photo!], Suppl. material 1: fig. S4).

Note. The name *Centaurea dissecta* var. *nigra* is legitimate even though it was published under the illegitimate *C. dissecta* Ten. (1812: LI), a later homonym of *C. dissecta* Hill (1762) (Art. 55.2 of the ICN). Fiori (1904) described *C. dissecta* var. *nigra* providing a short description, and quoting several herbarium samples and their collectors. We traced in FI some of the herbarium specimens cited by Fiori in the protologue: the duplicate specimens barcoded FI058572 and FI058582 are labeled "Gran Sasso d'Italia, rupi della Traversa del Pizzo Cefalone, 16 agosto 1893, *U. Martelli*"; the specimen FI058573 is labeled "Gran Sasso d'Italia (Corno Grande) ad 26-2700 metri circa, 21 agosto 1879, *E. Levier*". The morphology of these specimens is congruent with the protologue and with the current application of the name (Pignatti et al. 2018; Bartolucci et al. 2024), and they can be safely considered as original material (Art. 9.4 of the ICN). We select here the herbarium specimen FI058572, bearing the label "*Centaurea dissecta* Ten. var. *nigra* Nob." made by Fiori, as the lectotype for the name *C. dissecta* var. *nigra*.

***Centaurea laciniata* Guss. ex DC., Prodr. 6: 582. 1838. [early January 1838]**

≡ *Centaurea ambigua* subsp. *laciniata* (Guss. ex DC.) Arcang., Comp. Fl. Ital.: 392. 1882.
≡ *Centaurea dissecta* var. *ambigua* f. *laciniata* (Guss. ex DC.) Fiori in Fiori & Bég., Fl. Italia 3(2): 336. 1904. [April 1904]

Protologue citation. "In asperis regni Neapolitani ad Aprutium. Cent. ambigua Ten. itin. ex Guss.".

Lectotype (designated here). [Italy, Abruzzo] Napoli/Abruzzo, *1831*, *Gussone s.n.* (G barcode G00487426; the image of the lectotype is available at https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=339609&lang=en).

Nomenclatural note. de Candolle described *Centaurea laciniata* (1838) providing a description and a generic locality. In G-DC (barcode G00487426) we traced one specimen under the name "*C. laciniata* Nob. ined." This is a specimen sent to de Candolle by Gussone under the name "*C. laciniata* Guss. ined.". This sample was collected in Abruzzo (without indication of a specific locality) and on the label de Candolle reports "*De hoc loquitur Tenore in itinere a Monte Corno sub Cent. ambigua nomine* [Tenore speaks of this on his journey from Monte Corno under the name Cent. ambigua]", information that does not help to identify the collection locality. The herbarium specimen is complete, well preserved, agrees with the protologue, and can be considered as original material (Art. 9.4 of the ICN). Although it might potentially be a holotype, at the same time there is a possibility of further original material in other herbaria. Accordingly, the specimen G00487426 is prudentially selected here as lectotype for the name *C. laciniata.*

Taxonomic note. The name *Centaurea laciniata*, currently accepted as *C. ambigua* subsp. *laciniata*, applies to plants narrowly endemic to Abruzzo, central Italy (Bartolucci et al. 2024; POWO 2024+). This subspecies is traditionally distinguished only by its undivided lower leaves and pinnatifid upper leaves (Arcangeli 1882; Fiori 1904). These characters are inconsistent and without taxonomic value, also occuring in *C. ambigua* s.str. Thus, *C. laciniata* should be considered as a heterotypic synonym of *C. ambigua* subsp. *ambigua*.

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Supplementary material 1

Digital images of the designated type specimens

Authors: Fabrizio Bartolucci, Fabio Conti

Data type: pdf

Explanation note: **figure S1.** Lectotype (NAP0005395) of the name *Centaurea ambigua* Guss. kept at NAP (reproduced with permission of the Herbarium, University of Naples, Italy). **figure S2.** Lectotype (FI058574) of the name *Centaurea dissecta* var. *macrocephala* Groves ex Fiori kept at FI (reproduced with permission of the Herbarium, Museum of Natural History, University of Florence, Italy). **figure S3.** Lectotype (FI058575) of the name *Centaurea dissecta* var. *melanocephala* Fiori kept at FI (reproduced with permission of the Herbarium, Museum of Natural History, University of Florence, Italy). **figure S4.** Lectotype (FI058572) of the name *Centaurea dissecta* var. *nigra* Fiori kept at FI (reproduced with permission of the Herbarium, Museum of Natural History, University of Florence, Italy).

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